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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,692	03/25/2004	Tsutomu Ogihara	035576/276101	6062
826	7590	03/20/2006	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			SARKAR, ASOK K	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/808,692	OGIHARA ET AL.
	Examiner	Art Unit
	Asok K. Sarkar	2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 15 February 2006.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-15 is/are pending in the application.  
 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 and 13-15 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 05 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date 1/27/06.

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

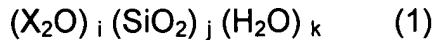
2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 – 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama, US 2004/0155053 in view of Watanabe, US 6,632,489.

Regarding claims 1 and 4, Nishiyama teaches a composition for forming a porous film comprising a condensation product and a solvent wherein the condensation product is obtained by condensation, in the presence of acid, of at least one compound selected from a silicate represented by formula (1)



wherein X independently represents Na, or quaternary ammonium such as tetramethylammonium, i, j and k independently represent numbers which satisfy  $0 < i < 1$ ,  $0 < j < 1$  and  $0 < k < 2$  in paragraphs 25 – 30.

Nishiyama fails to teach the composition comprising an organic solvent.

Watanabe teaches a silica sol composition that comprises organic solvent in column 6, lines 45 – 61 for the benefit of forming an ink that could be applied for coating by the ink –jet (see Abstract).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Nishiyama and form the gel by adding some organic solvent for the benefit of forming an ink that could be applied for coating by the ink –jet as taught by Watanabe in the Abstract.

Regarding claim 2, Nishiyama teaches tetramethylammonium silicate that has alkyl group with one carbon atom.

Regarding claim 3, presence of silicate with formula 2 containing R group is not required as Nishiyama teaches silicate group represented by formula (1).

Regarding claim 5, Nishiyama teaches forming porous film by applying the composition on a substrate, drying and heating the film in paragraphs 25 and 32 – 35.

5. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama, US 2004/0155053 in view of Watanabe, US 6,632,489 as applied to claim 1 above, and further in view of Mandal, US 6,576,568.

Regarding these claims, Nishiyama, in view of Watanabe fails to teach the modulus of elasticity and the dielectric constant.

Mandal teaches that the porous films formed from the silica sol have modulus of elasticity between 5 – 50 GPa and the dielectric constant of 2.3 or less in between column 6, line 58 and column 7, line 10 for the benefit of providing a premetal or intermetal dielectric film in column 1, lines 12 – 16.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention of Nishiyama in view of Watanabe that porous films obtained by the sol – gel process can be customized to have modulus of elasticity between 5 – 50 GPa and the dielectric constant of 2.3 or less for the benefit of providing a premetal or intermetal dielectric film as taught by Mandal in column 1, lines 12 – 16.

#### ***Claim Rejections - 35 USC § 102***

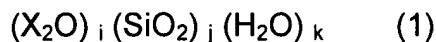
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe, US 6,632,489.

Watanabe teaches a composition for forming a porous film comprising a condensation product and an organic solvent (column 6, lines 45 – 61) wherein the condensation product is obtained by condensation, in the presence of acid, of at least one compound selected from a silicate represented by formula (1)



wherein X independently represents Na, or quaternary ammonium (in between column 8, line 50 and column 9, line 7) , i, j and k independently represent numbers which satisfy  $0 < i < 1$ ,  $0 < j < 1$  and  $0 < k < 2$  in between column 6, line 30 and column 9, line 7.

***Response to Arguments***

8. Applicant's arguments filed February 15, 2006 have been fully considered but they are not persuasive. There are several points raised by the Applicant in the filed argument. The first argument (see paragraph 2, page 6) is that in the references of Nishiyama and Watanabe there is no motivation for combination or motivation. This argument is not persuasive for the following reason. Nishiyama teaches a method of forming a silica gel by acidification of an alkali silicate except that he does not use any organic solvent. Watanabe uses a very similar method of forming a silica gel by acidification of an alkali silicate (see column 9, lines 1 – 7) and also the organic solvent (see column 6, lines 45 – 61) for forming the ink for the ink jet process (see Abstract). Therefore Nishiyama's teachings can be combined with Watanabe's teachings.

The Applicant's second argument is about the silica composition of Nishiyama

(see paragraphs 2 and 3 in page 6). The pore sizes are for the calcined powders and not the gel. Nishiyama's gel formed in the wet form will be very porous since the condensed silica gels are inherently very porous. The Examiner's intent was to use the gel in the organic solvent and not the calcined powder. Most of the solvents suggested by Watanabe are water soluble and therefore Nishiyama's gel need not have to be dried and calcined.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. This application contains claims 6 – 12 drawn to an nonelected invention in Paper filed October 20, 2005. A complete reply to the final rejection must include

cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Asok K. Sarkar*

Asok K. Sarkar  
March 16, 2006

Primary Examiner